FINGER TIP EDUCATION

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Exploring Fingers Open New Worlds for Sightless Students Through New Models Project Developed by School for Blind

If the purpose of education is to give meaning to life or to human activities and relationships, and to develop proficiency to the limit of individual capacities, the Ohio School for the Blind is reaching the zenith in educational purpose for its students. Braille brought the written word within their grasp, unlocked a giant barrier to knowledge, and released to them the treasures of literature. The models project of the Ohio School for the Blind has added form, size, and texture to the comprehensions of its students, and true meaning to their conceptions of what they have read. Educational service has here become the apogee of both education and service. Literally, they now have the world at their finger tips.

The story of this development, unique in the practices of schools for the blind, is almost as fascinating as the constructive and stimulating uses to which it is being put. For some time Supt. W. G. Scarberry, O. J. Hill, supervisor of classes, and other faculty members had been challenged by the fact that pupils had vague and erroneous ideas of size, shape, and texture. Even those of adult age had very little idea of comparison and proportion. Some believed a rat was as large as a rabbit, that a cow was six feet high, that a sheep was just a little smaller, or that a robin was as large as an owl. Many of the pupils evidenced a keen desire to know just how the exterior of their school looked. As one pupil commented, "All we know about our school is as high as we can reach with our finger tips."

There was no question in the minds of those facing this situation that here was a field of vast potential educational value wherein very little had been done. After careful study, it was decided that models of things seldom if ever "seen" by the blind would be the solution to the problem. A WPA appropriation of nearly $45,000 was obtained to finance the desired project.

In determining the models to be constructed, each teacher was asked to submit a list of the objects he or she thought would be most helpful in class work. The next step was to consult unabridged dictionaries and textbooks that were especially rich in illustrations. From these sources a list of models was formulated.

Materials were the next perplexing problem. Obviously, the materials for constructing a skyscraper or locomotive would not do for birds or animals with their soft fur or delicate feathers. Mounted birds would be expensive and, handled as they would necessarily have to be, would soon have the appearance and feeling of going through a first class molt. In this particular case, then, it was decided to use masonite board background and build the birds in high relief with plasticine. It is realized that a robin built of modeling clay will not have the feel of the original bird, nor temperature, movement, or silky texture, but it does give accurate comparisons of size to correct senses of proportion which were in some instances so ridiculous as to be almost pathetic.

The construction of a relief map showing five different methods of checking gully erosion required something still different. Newspapers were soaked in water, molded in shape as skeletons for ravines, covered with plastic material, and allowed to harden. Dry sponges were used to show shrubbery and trees. These examples are typical of the general procedure and indicate that ingenuity had to be used on the construction of practically every model in an effort to make texture as well as shape as authentic as possible, for, to these pupils, the sense of touch is highly developed and highly instrumental in determining the nature of the object under "observation."

Accurate Scaling Demanded

Accurate scaling was another important factor. No model, regardless of the size of the original, could be more than three feet in any one dimension. A brass tag in braille was attached to the model, giving the name, dimensions, and scale for extension. This scaling almost uncannily gives the impression of size. Even to the novice, unused to developed sensitiveness of touch or of imagination, to feel the small door at the base of the miniature Washington Monument, to set the scale in mind, and then to raise the finger tips upward along the side gives a sensation of height almost equivalent to the high ride in one of the real monument elevators.

trinsic; it grows out of the situation. The fact that practice of the arts draws upon the inner springs of the emotions involves the only really valuable condition for forming social attitudes, namely, one in which the emotions are brought into play. Again, many art projects involve two or more people, in dramatics and music, and work towards a common objective, thus forcing socialized development.

The arts do not yield to any field of human endeavor in the demands which they place upon intellectual ability. The arts do, however, place a very high degree of importance on the human being as a whole, continually draw on his subconscious store of past experience, and continually call for the expenditure of all his emotional capacities. Any great human product whether it is a building or painting or piece of furniture comes out of and carries with it intensity of feeling. If schools put too much emphasis on the intellectual as opposed to the emotional, it is time that they take a new turn. The arts provide for deep and significant relationships between all phases of man's being, emotional, intellectual, and physical, and provide relationships between this integration on the part of one individual and the same qualities in other people. Because the arts allow for this balanced development they contribute to a very deep and essential satisfaction without which an individual makes, and wishes to make, no progress. Because the art product is the incorporation of an idea in very concrete form it can receive social recognition and be socially useful. For these reasons the arts dignify emotion.

Public Support Essential

The results of work in the arts are concrete and ponderable. For these two reasons they lead to self-understanding and social recognition. Art products are tested immediately and the test is their usefulness. It is of ultimate importance that it be recognized that this usefulness may be chiefly to the individual who created the product. In such a case the product must be measured in terms of its contribution to the growth of that individual. Adult or commercial standards are out of place.

In order to achieve such objectives as are listed above the arts must, of course, have enough public recognition so that faculty groups, administrators, and taxpayers work together to provide such situations as the following:

1. All work-shops and laboratories of the arts should be available for both general and specialized work. This involves arrangement of schedule and space, so that the work shop can be open for use by individuals and groups from all other areas in the school. Obviously, where the work shop cannot be open in this way throughout the school day, it must be open at periods most usable for social science, science, English, and other groups.

2. The workshops for all the arts should be as nearly adjacent as possible. The rooms should be big enough so that freedom of movement, freedom of arrangement, and favorable conditions of work prevail.

Advantages in Location

The fact that the rooms are adjacent will lead to beneficial exchange of ideas between both teachers and pupils working in the several areas. It will make easier such cooperation as is often practiced where the design is made in the art room and executed in the wood workshops or the home arts laboratories.

The fact that there is enough space will make possible much more individualized work even though the class may remain large. This is true because portions of the room can be screened off to be used by a variety of groups.

3. There should probably be at least one teacher of each of the arts to every 200 pupils. No one teacher can handle that many pupils to advantage, but he can be effective in counseling other teachers with regard to those who are not able to work under his own guidance.

4. Learning to make wise choices depends on having choices to make. The arts, because of the very materials and purposes of the work itself, can offer a large amount of pupil-teacher planning. This means that in most shops and laboratories the visitor will see boys and girls working on a great variety of individual and group projects. There will be general discussions and in some cases group instruction in specific techniques, but always because the pupils have plainly expressed a desire for it.

5. There must be as wide a range of materials and basic tools as possible. The mere presence in the shop of this variety is a stimulus to experiment, exploration, and new ambition.

6. Evaluation will be typically in terms of pupil's statements and pupil choices. The arts, because they do offer so much opportunity for freedom and for work that is natural to the pupil's real interests, maturity, and experience, also offer one of our most fruitful sources of basic evaluation. As yet very little use has been made of this opportunity.

7. Exhibitions should be used primarily as a way of stimulating critical analysis. This means that they should not be used primarily to show off the work of a favored few. Ordinarily work in the arts will be exhibited and discussed from day to day quite naturally and this will apply to everybody's work. On occasions when it seems important to show the public what has been accomplished, it will obviously be necessary for the pupils to be consulted so that whatever the results, they have not been imposed on pupils by external circumstances having little to do with education.

8. There should be a minimum of lectures, of talking to pupils. There should be a maximum of first-hand experience. This means that pupils will do their own work for purposes important to them and in ways appropriate to their individual capacities. It means that they will work for themselves, hear, touch, taste for themselves, rather than be told what someone else has worked out and what someone else thinks is the proper reaction to what he has seen.

Cooperative Planning

9. There must be, in addition to rooms adjacent if possible, opportunity for arts teachers to plan together, not only with each other, but with teachers of other fields. They must have opportunity to visit classes so that their suggestions and their actual work with pupils is based on a good understanding of work going on elsewhere in the school.

In conclusion, may I again invite anyone who reads this article to participate with the teachers throughout the nation who are already engaged in the work of clarifying and improving the contribution of the arts to general education. Address your communications to the author at Ohio State University, Columbus, Ohio.

Art is a powerful instrument of social control left too often in the hands of those with a war to stir up or a piece of merchandise to sell. When shall we put it to work for better aims? — Thomas Munro, Cleveland Museum of Art.

Accuracy in detail was still another essential which consistently required attention. The statues of friezes of a cathedral or Parthenon must be authentic for, to sensitive fingers, facial features, parts of the costume, and form all have a significance and importance little realized or known by those gifted with normal sight. Watch the rapt features and the questing finger tips of a student "seeing" the Dutch windmill, Lincoln's log cabin, or the units in the transportation series if you would witness a vital "thirst for knowledge." Listen to a student describe the details and their meaning or usefulness if you would hear of "purposeful activity" or "learning based on experience."

Research Precedes Activity

In order that the model may tell a story as true and as nearly complete as possible, a research department has been organized and intensive study precedes construction of any model. A staff of specialists has been trained for the actual construction.

Obviously, the effective use of these models in the learning process rests finally with the teacher. Consequently she must familiarize herself with the historical background, the details, the uses, and interesting features of each model that she will use. Much of this material is secured and compiled in pamphlet form by the research staff. Accompanying the factual data are suggestions explaining how the teachers may use it. Sometimes the reading of all available material by students is a preliminary to the study. At other times, it is preferable to permit thorough exploration and investigation of the model before the reading material is offered to the student. Bear in mind that interiors as well as exteriors have been developed, sometimes as part of a single unit, sometimes as separate units.

The replica of the House of the Tragic Poet becomes indispensible to the Latin teacher. The English teacher finds an invaluable aid in the students' development of things they want to say and how to say it. The pupil in mathematics finds new meaning to the square of a number if he knows how many square blocks he has and then finds that they will not fit properly into a larger square. The primary teacher finds that the birds and animals facilitate real comprehension through contact. English, mathematics, and nature study can be correlated through projects. The educational values in history, geography, and other social sciences are apparent at once through these studies of models and the sharing of experiences in those studies. Consider the enforced "leisure time" requirements of these pupils and the boon of cultural as well as practical training through these activities will be realized.

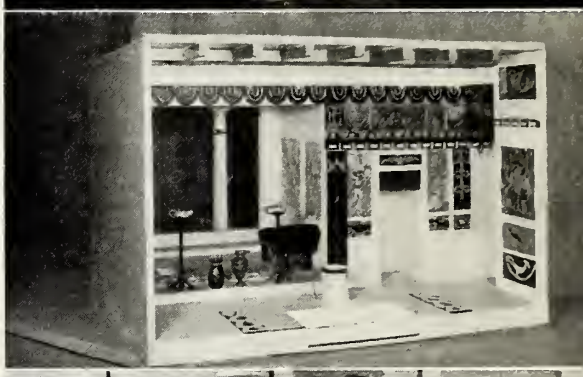
Some indication of the educational value and the deeper meaning of these models is contained in the comment of Helen Hurst, 25-year-old blind lecturer, as she visited the school when in Columbus last fall to address the Central Ohio Teachers Association, quoted in the *Columbus Citizen*. "For the first time in my life, I learned the real difference between a colonial type of house and one of modern design. I learned how a skyscraper towers up in the air above other buildings. In the past I have walked around buildings and felt the exteriors of them but it was impossible to get a true conception of the whole. Last summer I toured France, Italy, and Germany, visiting the greatest cathedrals in the world. But yesterday, feeling that small model of a church, I learned more about the beauty of them, the spires and steeples, than I ever knew before."

A lighthouse, a cathedral, a skyscraper, a modern house, or a log cabin are not merely words now. A farm with fields of corn, wheat, and other products now has reality. The transition in transportation from oxcart to skyliner has meaning. An artesian well is comprehensible and its nature understood. Colonial and modernistic give distinction to types of architecture in the houses studied. A blockhouse grows in historical signifiance when the simple but ingenious details of its construction are made apparent.

Mrs. Franklin D. Roosevelt, impressed with student use of the models, has suggested their wider use for exhibition purposes. Some of them will be on display at the New York exposition. Others will be used in a traveling exhibit. In the meantime, the work of planning and construction goes forward with ever-increasing variety and perfection and with greater use in various subject matter fields.

Light in Darkness

To quote Mr. Hill, "We are not engaged in making toys but educational devices so that many things that have never been 'seen' by blind pupils before may be visualized now for the first time. It is our aim to make it possible for a blind pupil to get the correct conception of things beyond the reach of his finger tips. To this extent we have been successful, judging by the enlightened faces of those who have examined the models. Their enthusiasm is contagious. 'Oh, I never knew it was like this!' 'For what is it used?' 'How interesting!' 'How wonderful!' These expressions are continually heard as the blind child's fingers rapidly take in every detail of the model. Thus it is our sincere hope that we have made it possible for another beam of light to shine through a sea of darkness."



SCHOOL VENTILATION AND HEALTH

by O. E. HILL
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EDITOR'S NOTE.—The amount of new sch building construction and the problem of ve lation in old buildings at this time of y make this study by Supt. Hill of special inte just now. Though appearing to be of grea interest to the administrator or school engin it will be found to possess many useful sugg tions for the teacher.

DURING THE PAST twenty-five years, a great deal of experimentation has been conducted relative to the ventilation of school buildings. During that time contributions have been made from numerous researches which have dealt entirely with the mechanical side of ventilation problems and only a few have considered the real psychological value of ventilation as a help to the educational program.

A few of the later writers have realized that the whole purpose of education is for the youngsters. Due to this fact, they have studied problems relative to the effect of ventilation on the health of the child.

Certainly, we would all agree that the main object of schoolroom ventilation is the provision of atmospheric conditions which will facilitate physical comfort by the elimination of heat from the body surface without the production of objectional drafts. The experiments as portrayed in the research reports say that ideal conditions should be approximately 68° to 70° F. with a moderate air movement. Also, the majority of writers and engineers are agreed that under the condition of 68° to 70° F. it is necessary to control the humidity of the room.

Contradictory Reports

The results of many of these researches are contradictory. This is to say, no scientific agreement has evolved concerning the amount of air per child, the humidity of the air, the frequency of the change of air, or the source of air.

A number of years ago it was believed that ventilation of the school building was a matter of eliminating carbon dioxide. Later it was believed that the harm in foul air was caused by the poisonous organic material found in the air. Early in the history of improved ventilation, Winslow brought forth a theory that 30 cu. ft. per minute was the requirement per pupil. Thorndyke, Ruger, and Macall conducted experiments along this line in 1916 and found that there was absolutely no basis for the requirement of 30 c.f.m. per child.

McClure stressed the changing conception of ventilation and annexed new standards and policies in regard to findings on ventilation. He conceded from that experimental research over several decades that expired air, in rooms ordinarily occupied, does not contain poisonous or injurious substances nor is it a cause of discomfort. McClure also stated in his findings that the factors of main importance to ventilation are the physical properties of the air, namely temperature, humidity, and movement. He implies that the chemical condition of the air is of little or no consequence except as it affects the physical condition of the pupil. Also, he infers that mechanical ventilation could not be regarded as essential for schoolrooms, unless they are located in noisy, odorous surroundings or in cases of other special conditions.

Commission Findings

The report of the New York Commission on ventilation is one that has attracted country-wide attention.

1. The major objective of schoolroom ventilation is the provision of such atmospheric conditions as will facilitate the elimination of heat from the body surface without the production of objectional drafts. In practice this means a room temperature of 68° to 70° F. with moderate air movement. Under such conditions special control of humidity is not essential except in extreme northern regions where humidity is exceedingly low in cool weather. A minor point should be the provision of sufficient air with which to avoid unpleasant body odors.

2. The avoidance of over-heating is of primary and fundamental importance for the promotion of comfort and efficiency and the maintenance of resistance against disease.

3. Desirable conditions may be obtained by at least three methods of ventilation when proper design and operation is provided. For the average school, favorably locat window gravity ventilation seems be the method of choice on groun of comfort and economy.

4. Further study in regard to t psychological effects of radiation a conduction of heat, of vertical var tions in temperature, and of el trical and other properties of the mosphere are greatly to be desire

5. The present laws and regul tions requiring a supply of 30 c.f. per pupil in the schoolrooms has justification in theory and in practi and may involve a serious handic to progress in the art of school ve tilation.

6. Such regulations should be r placed by laws outlining the maj objects of school ventilation and de egating to some small expert bo the power to determine whether sp cific plans for school ventilation a adequate to attain those objective

Automatic Ventilation

A great deal of discussion in of the reports studied attached i terest and significance to the ana ogy of the mechanical system and t direct window gravity ventilation. bit of philosophy was injected in a few of these reports to the effe that approximately 80 percent of t operation expenses of the school sy tem goes for instruction and 15 pe cent for custodial services and su plies. It would seem a common sen thing, therefore, to have an aut matic mechanical type of syste which could be operated by janito rather than teachers. These repor signify that the main purpose of t teacher is to produce learning situ tions rather than the control of t physical condition in which to wor